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10/576,976

07/17/2006

Takayuki Takahagi

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EXAMINER

PARVINI, PEGAH

ART UNIT

PAPER NUMBER

1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/576,976 | Applicant(s) TAKAHAGI ET AL. | |
| | Examiner PEGAH PARVINI | Art Unit 1793 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-17 is/are pending in the application.
- 4a) Of the above claim(s) 4-8 and 10-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,9 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/16/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-3 and 9 in the reply filed on January 8, 2009 is acknowledged. The traversal is on the ground(s) that Bachrach et al. fails to disclose diamond fine particles and a dispersant in paragraph [0010]. This is not found persuasive because even if Bachrach et al. may not expressly disclose this, Horie et al., as also shown below in details, disclose compositions of diamond particles, water and tetramethylammonium hydroxide (i.e. amine substance).

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claim 15 is objected to because of the following informalities: the amine substance "triphenyl amine" has been repeated twice in claim 15. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 15 recites the limitation "said amine compound" in the first line of the claim language. There is insufficient antecedent basis for this limitation in the claim. It is recommended to change it to "said amine substance" to be in accordance with the wording of claim 1.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 9 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 3. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 9, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,941,572 to Horie et al. in view of U.S. Patent No. 6,337,060 to Hiraki et al. and as evidenced by Perry's Handbook of Chemistry defining tetramethylammonium hydroxide.

Regarding claims 1, 3, 9, and 14-15, Horie et al. disclose a suspension, used in polishing, of diamond particles of 100 nm, pure water (i.e. dispersant), and tetramethylammonium hydroxide (i.e. amine substance) (Abstract; column 5, lines 20-25 and 50-55; column 6, lines 4-8). It is to be noted that diamond particles of 100nm are taken to be fine particles.

Although Horie et al. may not expressly disclose the treatment of diamond particles with a purifying agent, it would have been obvious to one of ordinary skill in the art to treat diamond particles with a purifying agent such as concentrated sulfuric acid as that taught by Hiraki et al. (column 3, lines 32-41; column 4, lines 66-68; column 5, lines 1-3 and 45-55) and heat the mixture motivated by the fact that this results in obtaining diamond particles which are not only functionalized and oxidized but also have lost at least less than one tenth of their impurities. The sulfuric acid causes metal impurities and graphite to be oxidized with SO_3 to be dissolved as a sulfate and to form gaseous product (column 3, lines 49-54). In view of this, it is the examiners position that using a pure diamond would preclude the inclusion of impurities in the liquid (for

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surface grinding) thus minimizing the contamination of the substrate it is used upon (i.e. surface grinding of a substrate as is apparent from the specification in section [0032]).

Even though the combination of Horie et al. in view of Hiraki et al. does not disclose a boiling point within the claimed range recited in claim 1, it is known that tetramethylammonium hydroxide has a boiling point within the claimed range as evidenced by MSDS fact sheet.

Regarding claim 16, although the combination of references as applied above for claim 1 may not expressly disclose that the diamond particles have a purity of at least 95% or higher, said combination discloses a suspension comprising water (i.e. dispersant), tetramethylammonium hydroxide having a boiling point of(i.e. amine substance) and diamond fine particles which is made obvious to be purified and oxidized by concentrated sulfuric acid (i.e. purifying agent); therefore, the purity level of diamond particles is expected to follow from the purified and oxidized diamond particles of the combination of references absence clear and specific evidence showing the contrary.

Regarding claim 17, although the combination of references may not literally teach a size of 1-50 nm, the combination of references and specifically, Hiraki et al. clearly disclose that an appreciable increase in suspension stability is obtained with fine particles having a size of less than 1 micron and a longer suspension holding time is obtained with fine particles of the size of 200nm or less (column 3, lines 1-13).

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Therefore, it would have been obvious to one of ordinary skill in the art to modify Horie et al. in order to include a particle size which would have an overlapping range with the one instantly claimed in claim 17 for the primary particles and be smaller than 100nm motivated by the fact that Hiraki et al. makes it clear that the smaller the particle size, the better the suspension stability and the longer the suspension holding time.

Furthermore, it is to be noted that 1 micron or less and 200nm or less have overlapping ranges with the 1-50nm recited in claim 17, and overlapping ranges have been held to establish prima facie obviousness. MPEP § 2144.05.

Response to Amendment

Applicants' amendments to claims 1 and 9 filed January 8, 2009, are acknowledged. However, said amendments do not place the claims or the application in condition for allowance as set forth above.

Response to Arguments

Applicant's arguments with respect to claims 1, 3 and 9 have been considered in view of the new amendments but are moot in view of the new ground(s) of rejection. It is noted that claim 2 has been canceled, and claims 14-18 are newly submitted claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGAH PARVINI whose telephone number is (571)272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegah Parvini/
Examiner, Art Unit 1793

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793